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Winter track transects : Fundy National Park

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1991 WINTER TRACK TRANSECTS

FUNDY NATIONAL PARK

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Resource Conservation

Fundy National Park

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ABSTRACT

This report is an annual up date of the track transect survey initiated in Fundy National Park in 1977. The objective of this study is to compare mammal population densities and winter distribution of mammals through the use of track indices and was originally established by the Canadian Wildlife Service.

The field work consists of walking selected transect lines through representative habitat types and identifying and counting tracks of all mammal species encountered.

In 1991 all track transect lines were completed and track indices were calculated for each species giving relative population densities.

In 1991 the fox population in the park remained low, whereas the bobcat population has shown an increase, and the coyote population remained relatively stable.

The white tail deer indices are low and deer tracks were recorded in Areas I, II and III which has not happened since 1987. The white tail deer population remains at a low level.

The varying hare are the lowest since the track transects were initiated in 1977. Area IV did not have any hare track recorded on the transect lines.

It should be noted this is a progress report only and this paper should not be referenced without citing its progress report status. For an overall insight into this study, reference would be made to all previous track transect reports.

METHODOLOGY

Transects were selected on the basis of accessibility, topography, forest cover type and location within the Park (Bateman, 1977). Transect lines were in a magnetic east-west direction beginning at a road or trail accessible by car or snowmobile.

Biophysical maps (1:12,500) prepared by the Forest Management Institute were used to measure the distance which each transect passed through major vegetation types - softwood (30%), hardwood (8.2%), mixed wood (57%) and other (4.3%). Unforested areas such as bogs, old fields, roads, streams, and alder swales were grouped as "other" cover types.

The number of days since last snowfall (track days), weather conditions and pertinent information about snow cover were recorded each day of the study. Tracks were recorded on a Track Transect Data Sheet (Figure I).

The Park is divided into four areas (Figure II) primarily on the basis of topography. Divisions between the areas were roads, trails or waterways. The basic unit of measure is a function of the number of tracks in a given area, the length of transect sampled and the number of track days (days since snowfall). The formula used to calculate the indices is given below:

$$*TI = \frac{TTS_x}{[(L1 \times TD) + (L2 \times TD) + \ldots\ldots\ldots + (Ln \times TD)]} \times 100$$

TI - Track Indices
TTSx - Total tracks for Species X
Ln - Length of transect line n (Km)
TD - Track days or days since snow for Line N.
The percentage of each habitat type sampled is given in Appendices I.

FIGURE I

TRACK TRANSECTS - FUNDY NATIONAL PARK

Track Indices Per Stand

Date:_____ Transect No.:_____ Location:_____

Weather Conditions:_____

Snow Depth:_____cm Condition:_____

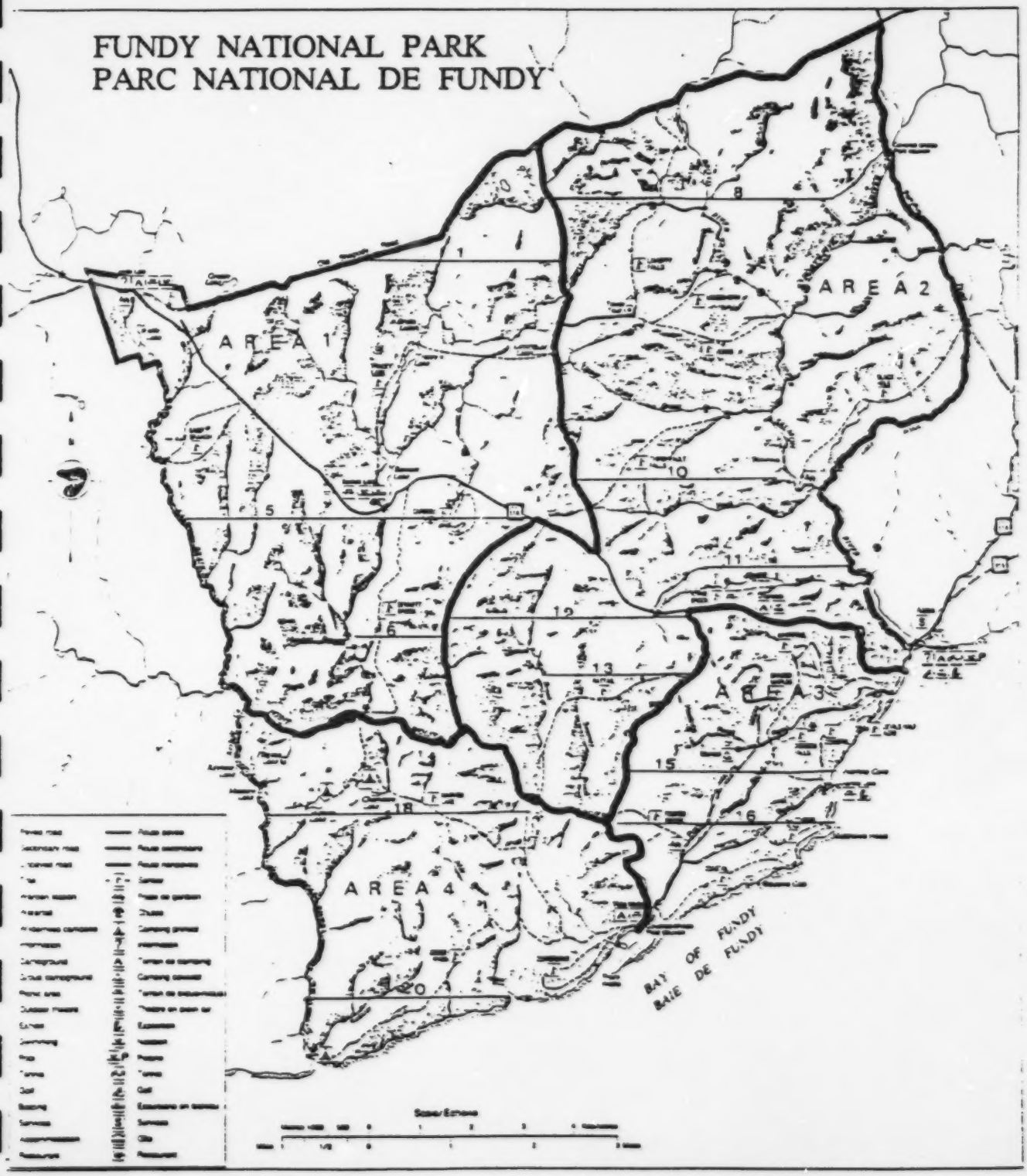
Days since last snow:_____ Observers:_____

COVER TYPES

SPECIES	SOFTWOOD		HARDWOOD		MIXED WOOD		OTHER			
	tracks	indices	tracks	indices	tracks	indices	tracks	indices	Specify*	Total
TOTAL										

*Other cover types = Alder, field, bog, etc.

FIGURE II. TRACK TRANSECTS AND AREAS 1-4



RESULTS

In 1991 the twelve transect lines that have been completed since 1982 were completed in January, February and March. The twelve lines completed were 1, 5, 6, 8, 10, 11, 13, 15, 16, 18 and 20 for 50.97 kilometres (Prescott and Bateman, 1978). Thirty-one percent of the total transect was through softwood, eight percent through hardwood, fifty-seven percent through mixed wood and four percent through "other" areas.

Snow depth during the transect period was 8 to 75 cm. A discussion of each mammal species and the relationship to date from previous years is given below.

WHITE-TAILED DEER (FIGURE III)

In 1991 white-tailed deer tracks were recorded in Areas I, II, and III.

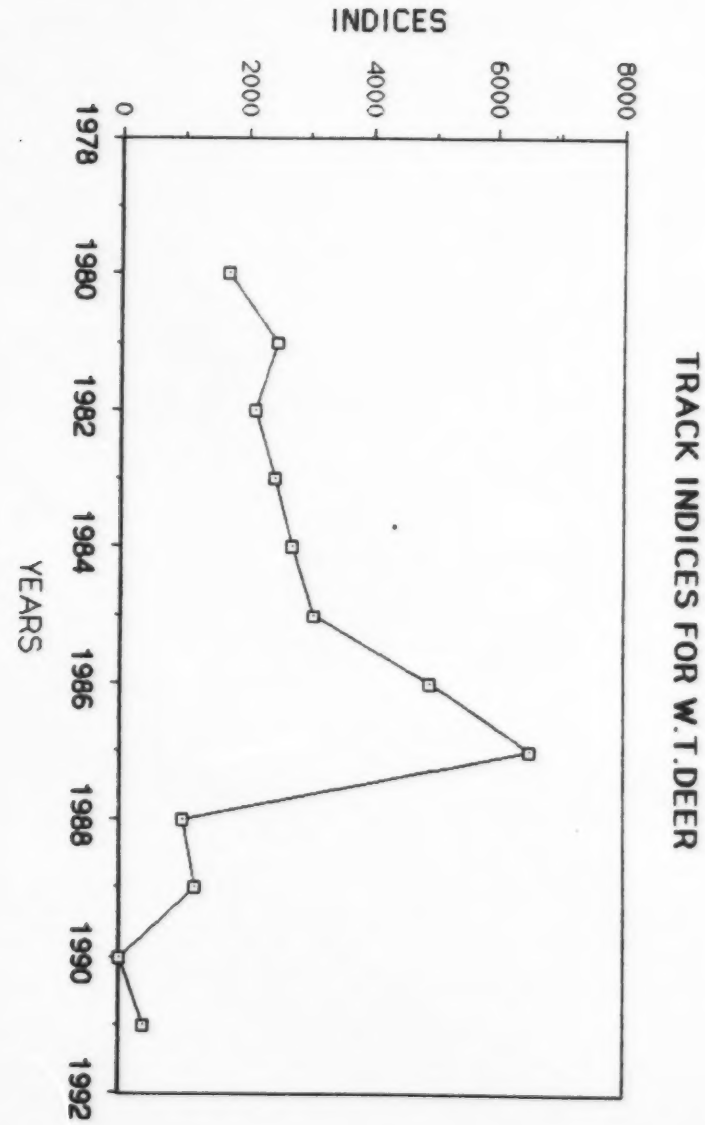
In 1991 no appreciateable amount of snowfall was recorded until the middle of January. During this period the deer had not moved to the coast until late in January.

The white-tailed deer population still remains low in Fundy National Park.

There were no deer kills recorded by predators. The only deer found dead in Dickson Brook believed to have been struck by a car. The fat content in the femur was 85%.

The winter of 1991 was one of least severe weather wise in the last four years. The deer herd in Fundy National Park remains low but appears to be healthy.

FIGURE III


TRACK INDICES FOR W.T.DEER
INDICES
0
2000
4000
6000
8000
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

MOOSE (FIGURE IV)

In 1991 moose tracks were obsered in Area I. Snow depth on the highlands was seldom over 90 cm so moose travel was never restricted. The moose population still remains low in Fundy National Park.

SQUIRREL (FIGURE V)

In comparison to 1990 squirrel indices for 1991 still remains high. Highest track indices was in Area III. No distinction was made between red and flying squirrels, although most tracks were assumed to be red squirrel.

PORCUPINE (FIGURE VI)

Track indices were recorded in Area I and III in 1991. The indices for porcupine remain low in Fundy National Park. No tracks have been recorded for porcupine in Area IV since 1983. Snow depth effects movement and predation from fisher may account for lower indices.

BOBCAT (FIGURE VII)

Bobcat tracks were recorded in Area I, II, and III in 1991. With snow shoe hare indices the lowest since 1978 and more bobcat sighting than in previous years, the bobcat population could be in trouble to survive as one of the major prey predators in Fundy National Park.

FIGURE IV

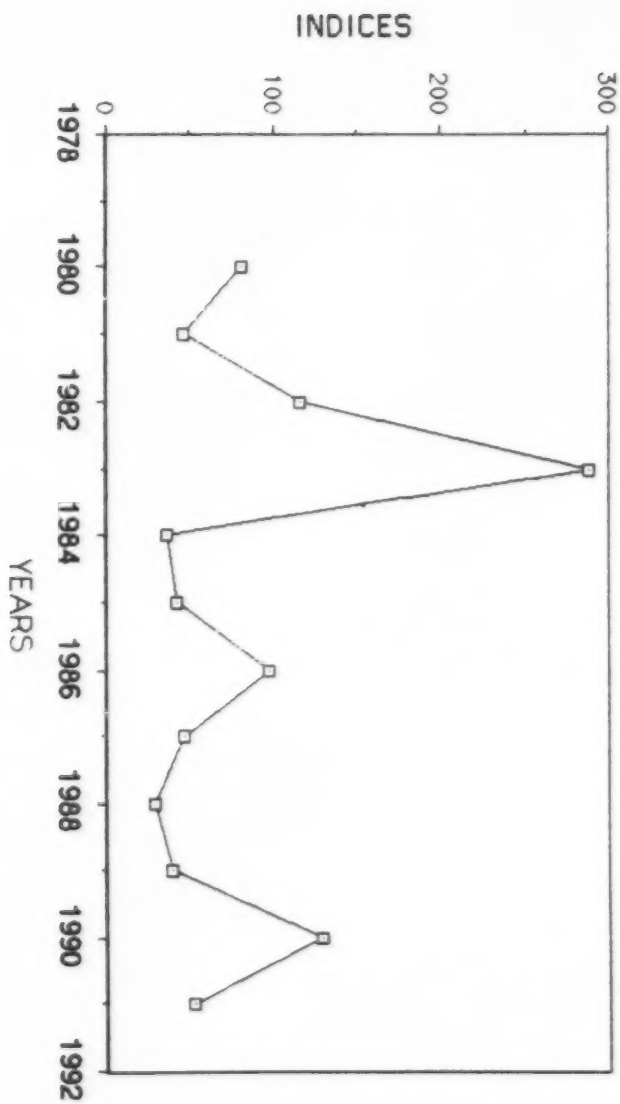

TRACK INDICES FOR MOOSE
INDICES
0
100
200
300
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE V

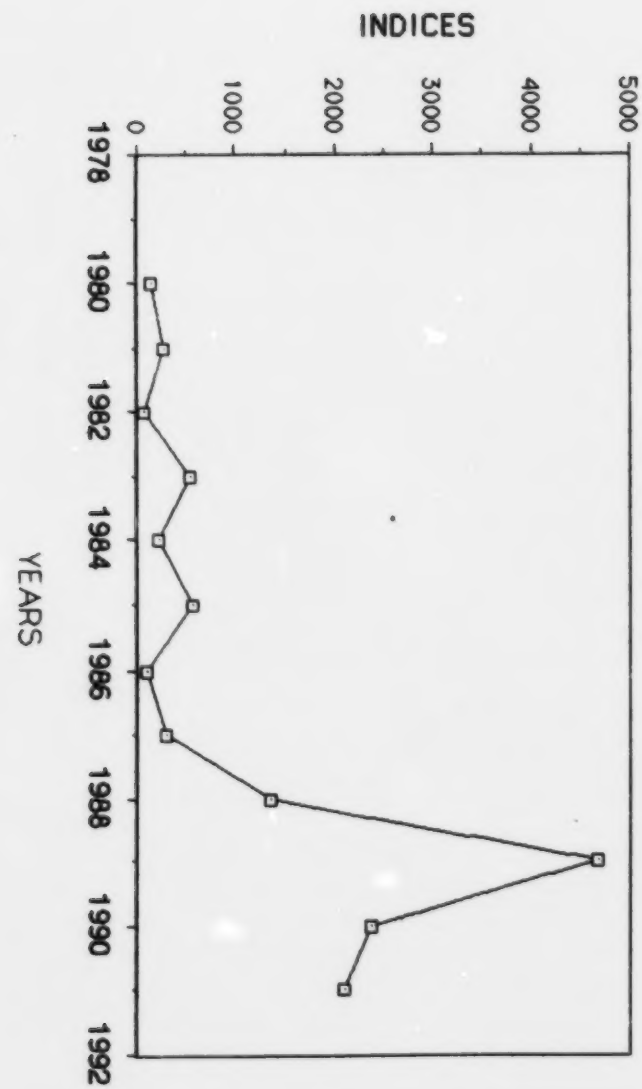

TRACK INDICES FOR SQUIRREL
INDICES
5000
4000
3000
2000
1000
0
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE VI

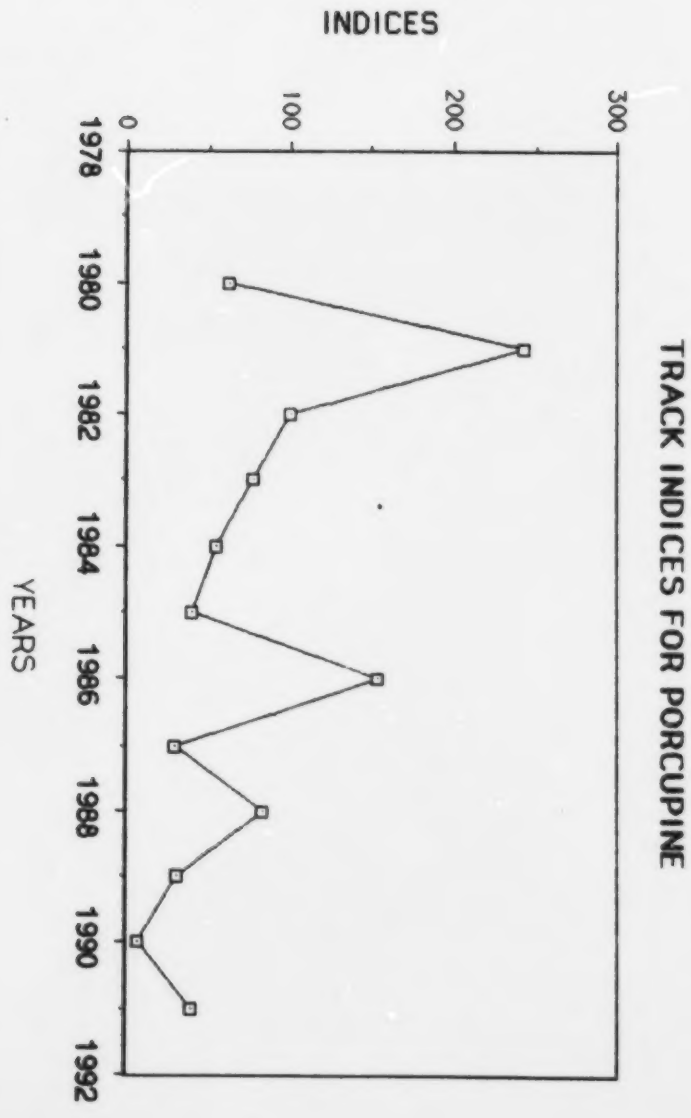
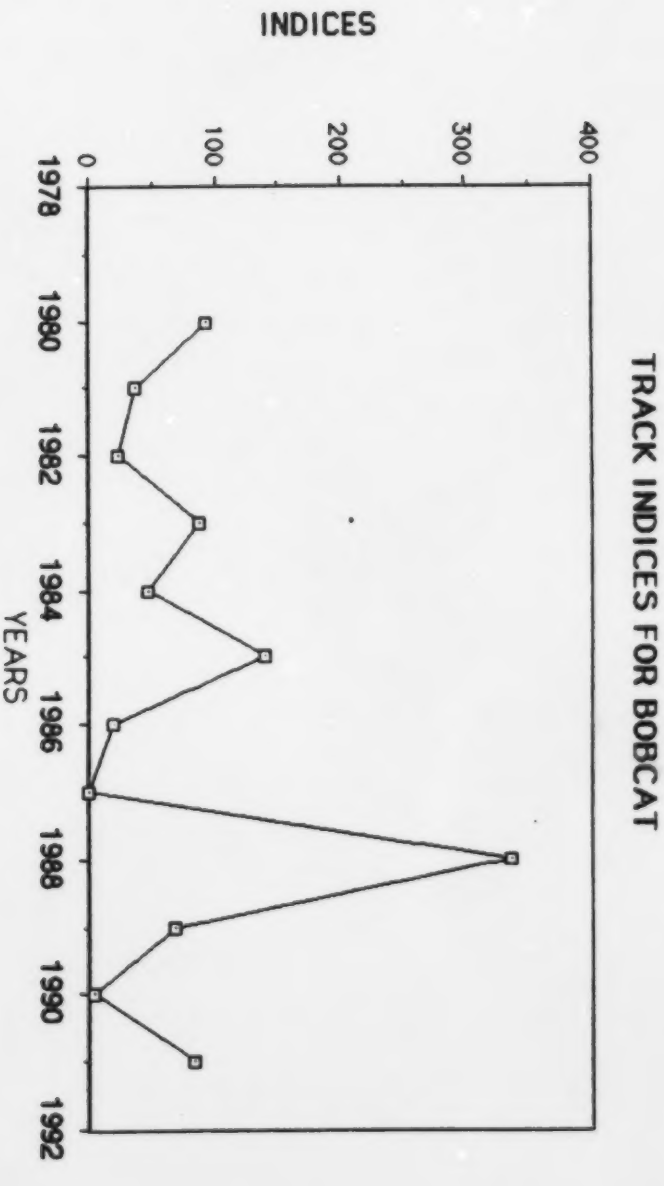

TRACK INDICES FOR PORCUPINE
INDICES
0
100
200
300
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE VII


TRACK INDICES FOR BOBCAT
INDICES
0
100
200
300
400
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

RED FOX (FIGURE VIII)

Red Fox tracks were recorded in Area I in 1991. Red Fox indices have declined to a low status. With hare population low and the competition of coyote and bobcat, the red fox population may never increase due to what it was in the early 1970's. There was hope in the previous three years the red fox population was on the rise.

MICE (FIGURE IX)

The track indices for mice include all shrews, moles, voles and mice. Indices for mice was recorded in areas of the park. The mice population in the park appears stable. When snow depth is less than 20 cm more mice tracks are recorded.

FISHER (FIGURE X)

Fisher tracks were recorded in all areas of the park in 1991. Based on track indices 1991 had the highest indices since 1977. Fisher is a predator on hare, mice and squirrel, with hare population low fisher may be travelling more in search of food.

WEASEL (FIGURE XI)

Tracks of weasel was recorded in Area I, II and III. Weasel indices is lower than 1991 but is about average with the remaining years.

FIGURE VIII

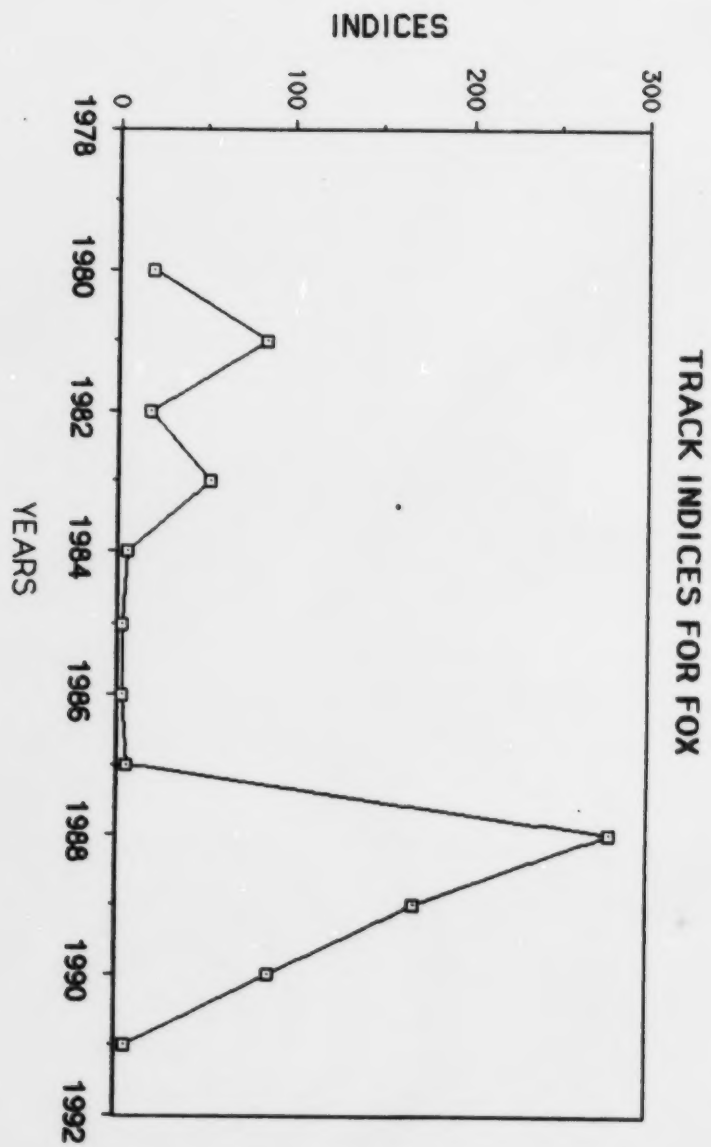

TRACK INDICES FOR FOX
INDICES
0
100
200
300
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE IX

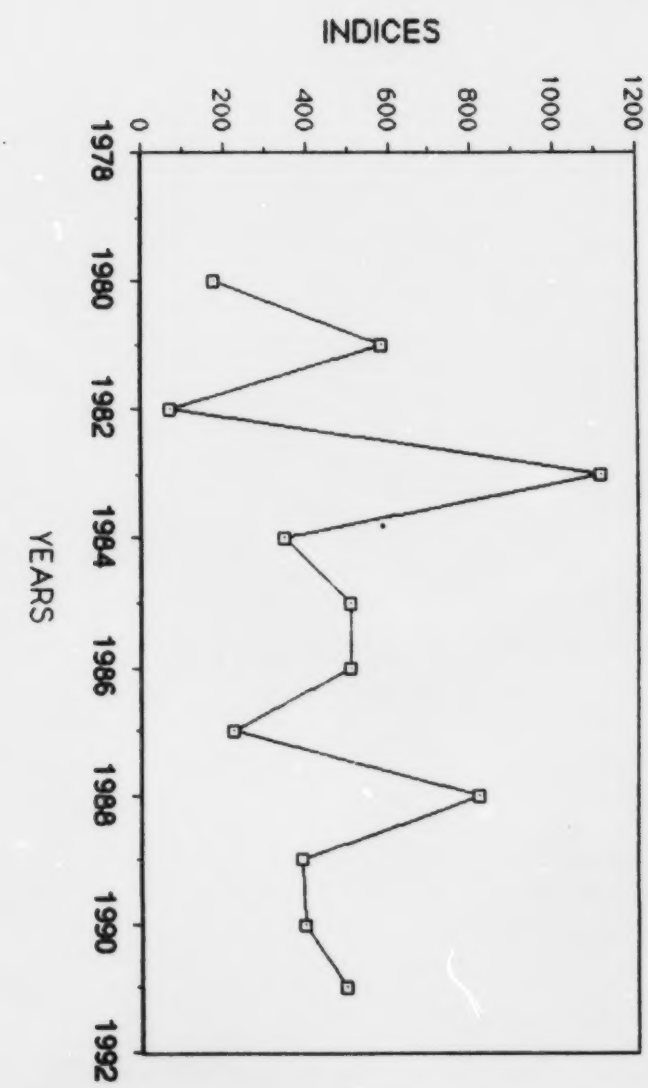

TRACK INDICES FOR MICE
INDICES
1200
1000
800
600
400
200
0
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE X

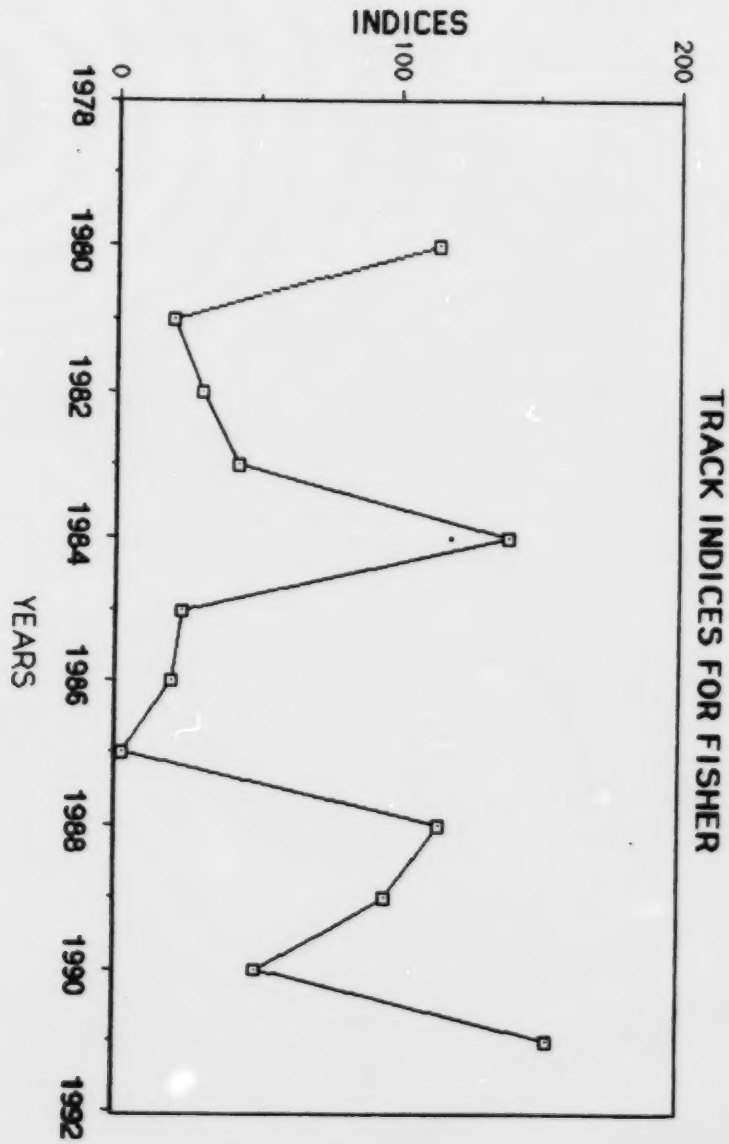
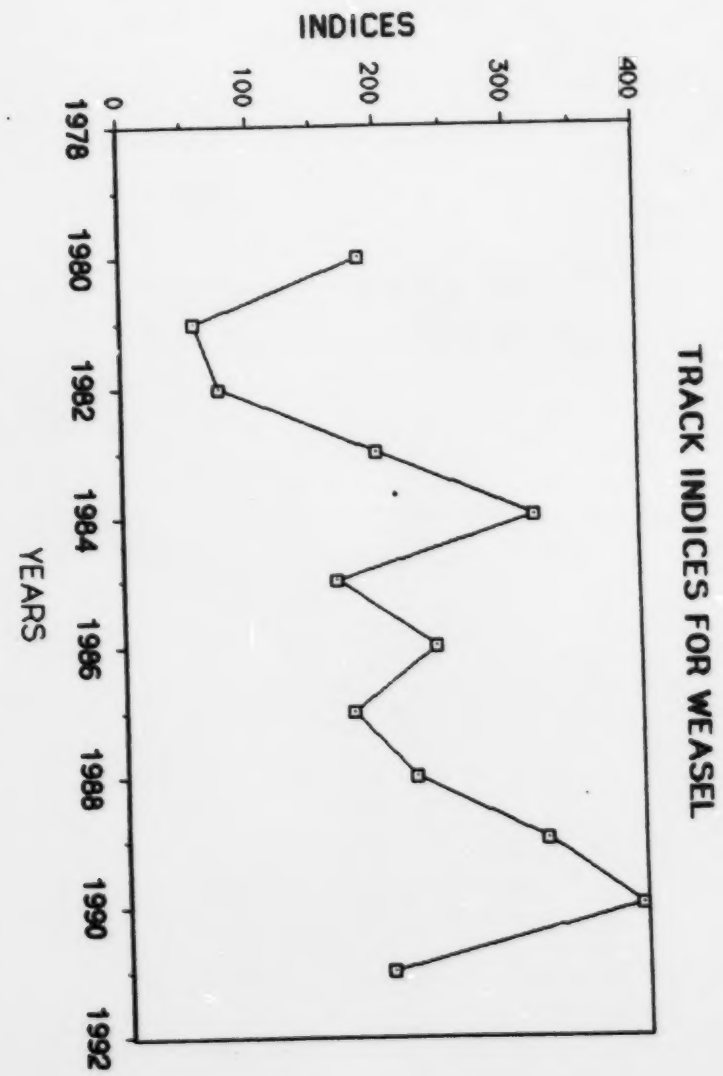

TRACK INDICES FOR FISHER
INDICES
0
100
200
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE XI


TRACK INDICES FOR WEASEL
INDICES
0
100
200
300
400
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

MINK (FIGURE XII)

Mink tracks were recorded in only one area; that being Area IV. Mink indices are low and one can assume there is not a large mink population in Fundy National Park.

OTTER (FIGURE XIII)

The otter is considered uncommon in Fundy National Park. Otter tracks were not recorded in the park in 1991. Again, like mink, otter are probably not well represented on track transects because of their propensity to follow open streams in winter.

LYNX (FIGURE XIV)

No lynx tracks were recorded in 1991. The lynx should be considered rare in Fundy National Park.

AMERICAN MARTEN (FIGURE XV)

American Marten tracks were recorded in Area's I, II and IV in 1991. The indices for marten tracks was lower than in the previous three years. This lower indices could be because of the low hare population.

Marten tracks were observed in Area III during the winter (G. Sinclair pers. obs., 1991).

The total number of marten released is now 44. Monitoring results on the American Marten may be obtained from American Marten Re-introduction Progress Report 1991; G. Sinclair.

FIGURE XII

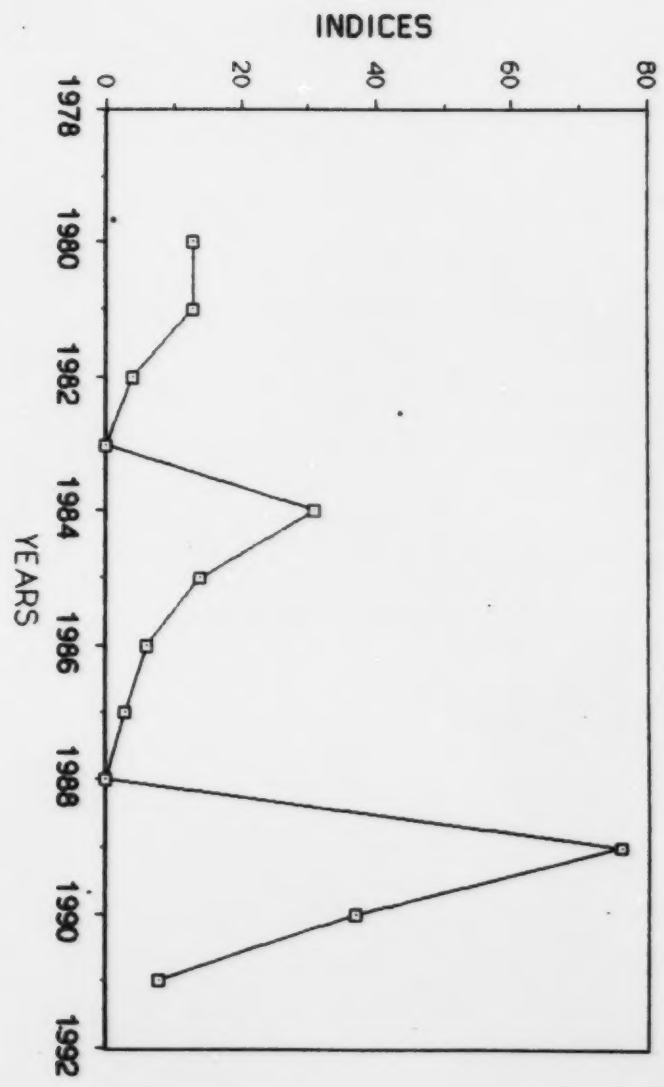

TRACK INDICES FOR MINK
INDICES
0
20
40
60
80
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE XIII

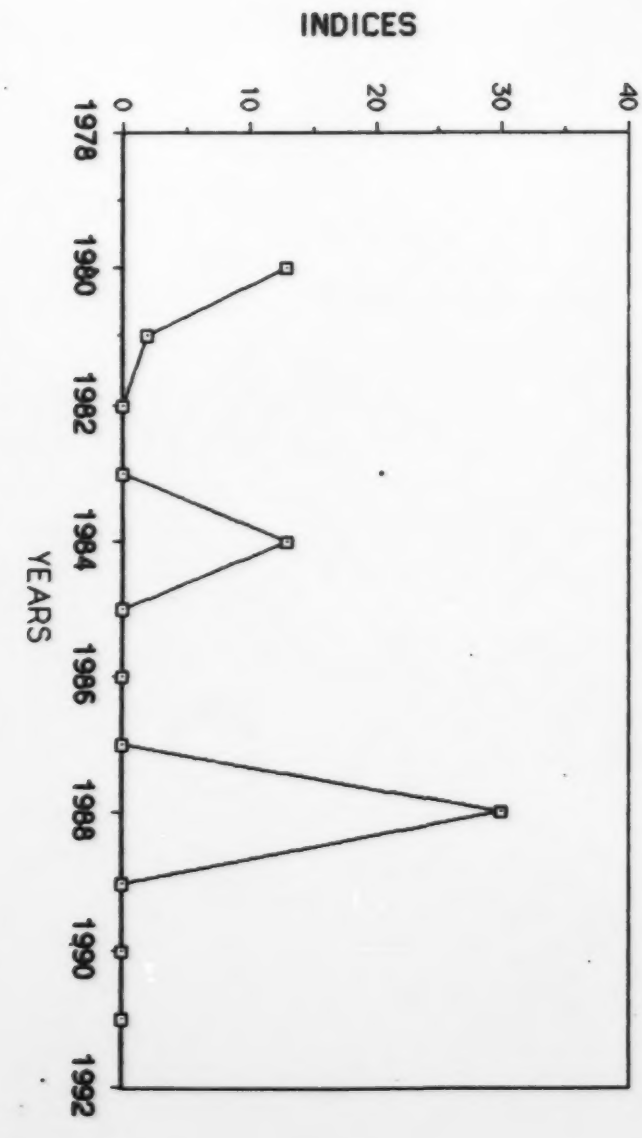

TRACK INDICES FOR OTTER
INDICES
0
10
20
30
40
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE XIV

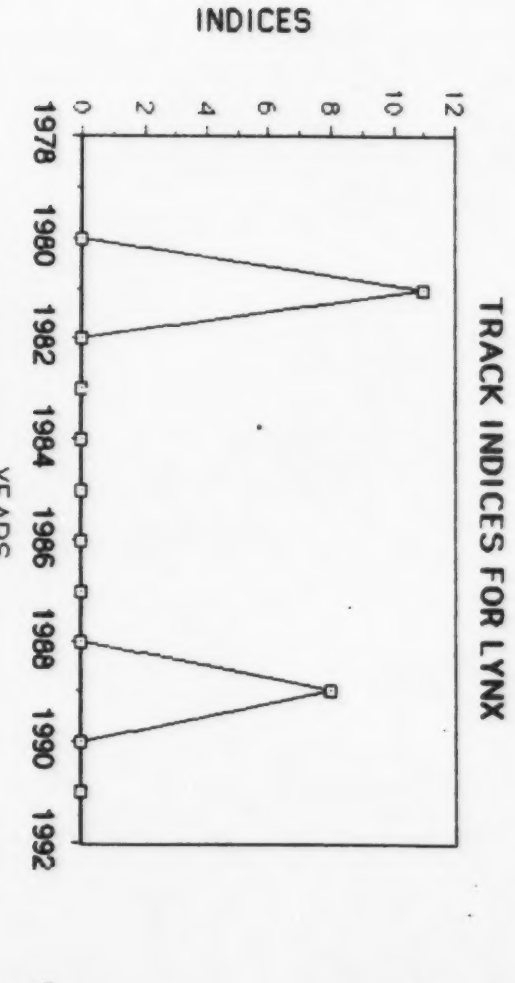
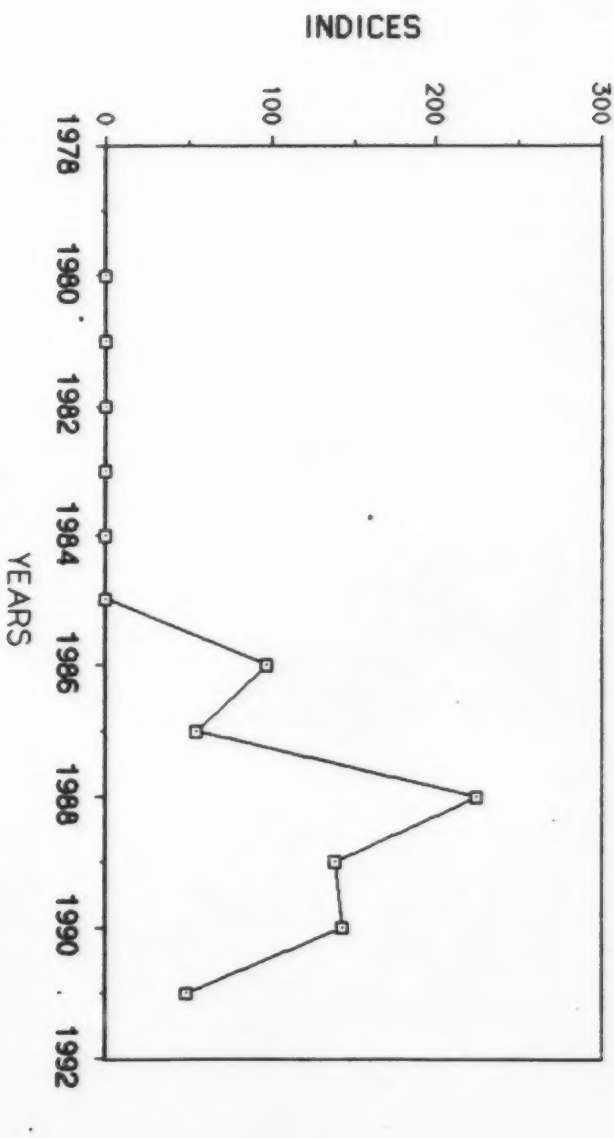

TRACK INDICES FOR LYNX
INDICES
0
2
4
6
8
10
12
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE XV


TRACK INDICES FOR AMERICAN MARTEN
INDICES
0
100
200
300
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

VARYING HARE (FIGURE XVI)

Track indices for varying hare have been the lowest since 1978. There was no hare tracks recorded in Area IV and no tracks were sighted on the trails to the transect lines which makes this being rather unusual.

The hare population being cyclic this may show the hare population at the bottom end of the cycle. Predation on the hare population being so low it may take a few years for the hare population to rebound.

COYOTE (FIGURE XVII)

Coyote tracks were recorded in all areas of Fundy National Park. The indices indicate a fairly stable coyote population. No indication of coyotes feeding on deer were found and with hare population low, coyotes may have moved outside park boundries or feeding on mice.

The coyote Vocalyzation Census usually carried out each fall was not completed because of weather condition so no estimate of population was prepared using this method in 1991.

FIGURE XVI

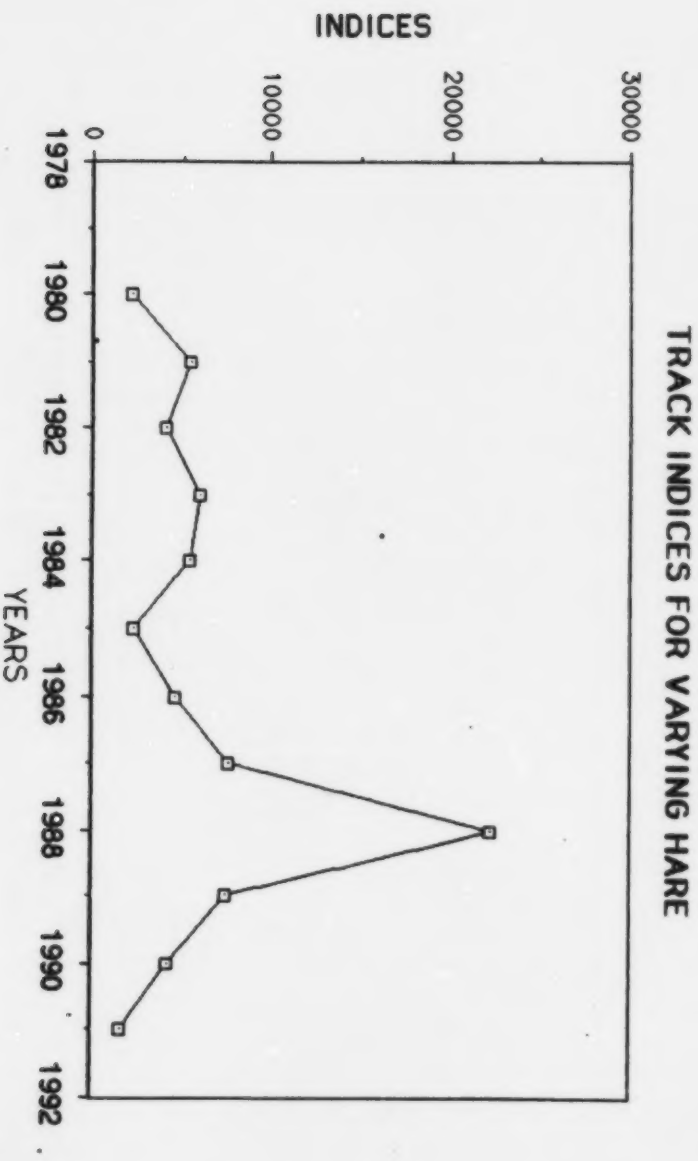

TRACK INDICES FOR VARYING HARE
INDICES
30000
20000
10000
0
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE XVII

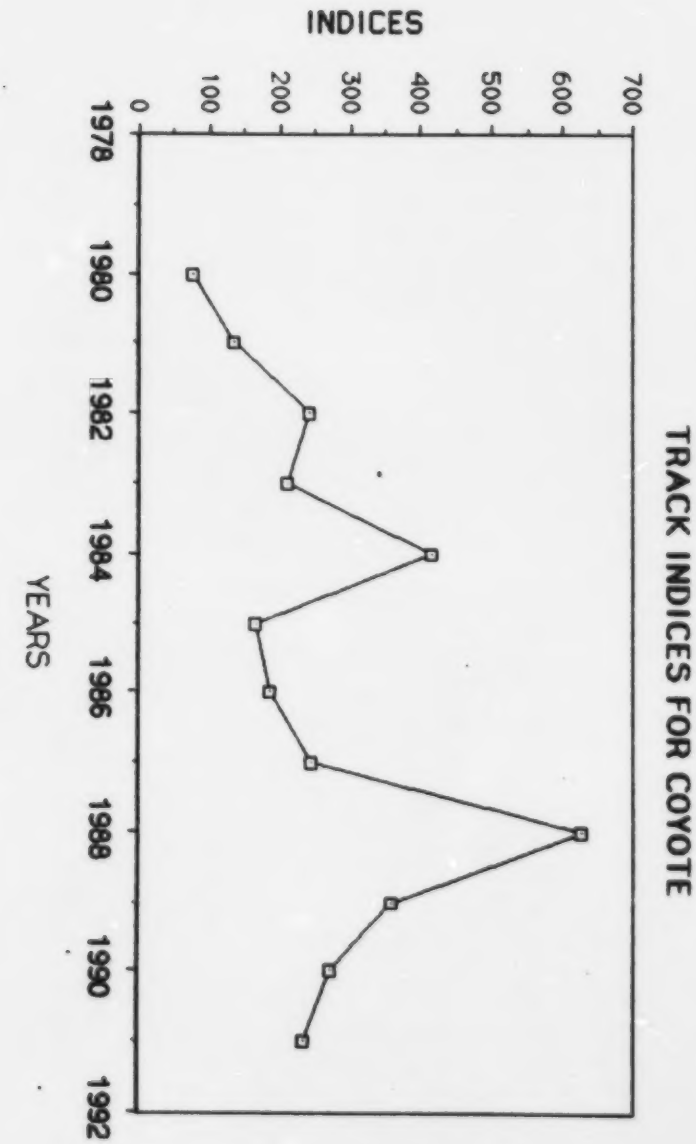
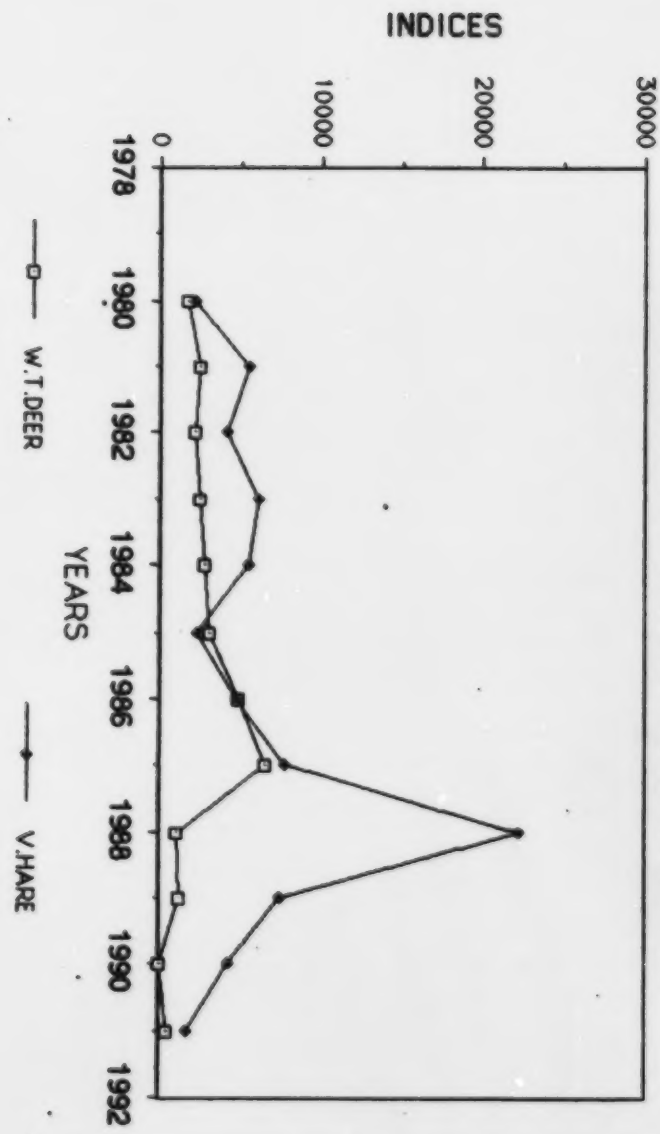

TRACK INDICES FOR COYOTE
INDICES
0
100
200
300
400
500
600
700
1978
1980
1982
1984
1986
1988
1990
1992
YEARS

FIGURE XVIII



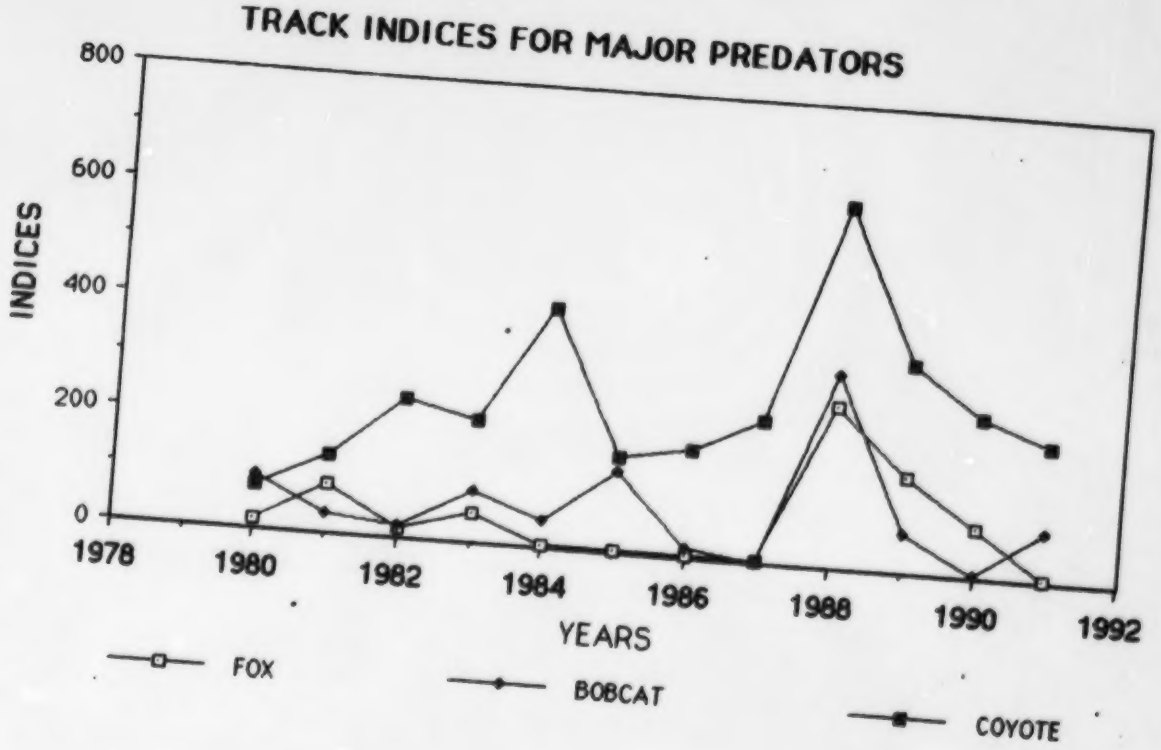

TRACK INDICES FOR MAJOR PREDATORS
INDICES
800
600
400
200
0
1978
1980
1982
1984
1986
1988
1990
1992
YEARS
FOX
BOBCAT
COYOTE

FIGURE XIX

DISCUSSION

This progress report adds data gathered in 1991 and discusses 1991 data in light of trends established in previous years.

In 1991 all twelve transect lines were completed in January, February and March. Snow depth during the transect period were between 8 and 75 cm. No appreciable amount of snow fell until January 10. The deer herd population in 1991 is low but apprears to have survived the winter healthier than in the past few winters, where deep snow and a larger population occurred.

The moose indices still remain low and the moose population would be considered low but stable for the past few years.

The predator population fox and coyote have decreased since 1988. The Bobcat indices increased in 1991. The Varying hare indices also shows a substantial decrease since 1988. The decrease in prey availability may be one reason for the major predators to leave Fundy National Park. The indices which show an increase in 1991 are Bobcat, Fisher, Porcupine and Mice.

The indices which show a decrease are American Marten, White Tail Deer, Moose, Coyote, Fox, Weasel, Mink, Otter, Lynx, Squirrel and the major one being the Varying Hare.

The changes in the relative mammal indices are caused by a number of factors, weather, snow depth, and changes in forest habitat.

RECOMMENDATIONS

1. The track transect project should be continued in the future to provide information on relative mammal population densities.

2. The twelve transect lines that were surveyed this year namely, lines 1, 5, 6, 8, 10, 11, 12, 13, 15, 16, 18 and 20 should be the lines completed in future surveys to maintain a consistent record.

LITERATURE CITED

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Quann, D., 1986. American Marten Reintroduction Program, Fundy National Park Library.

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Sinclair, S., 1989-1990. Winter Track Transect Report, Fundy National Park.

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Woodley, S.J., and Bosse, Y, 1987. Census of Coyote Populations in Fundy National Park Using Siren-Elicited Vocalizations.

Appendices

APPENDIX I - 1991

Track days x kilometers walked in each area and the percentage of the whole area that was covered.

Area	Softwood	Hardwood	Mixed Wood	Other	Total Km. x Track Days
Area I	6.21	2.09	10.24	0.46	19.00
	32.68%	11.00%	53.89%	2.42%	
Area II	6.46	3.79	19.19	0.75	30.19
	21.40%	12.55%	63.56%	2.48%	
Area III	2.31	0.0	4.97	1.14	8.42
	27.43%	0.0	59.03%	13.54%	
Area IV	5.26	0.0	8.06	0.0	13.32
	39.49%	0.0	60.51%	0.0	

$$\%\ \text{Habitat use in Area} = \frac{\text{Total habitat Transect Length x Track Days x 100}}{\text{Total Area Transect Length x Track days}}$$

Appendix II

TRACK TRANSECTS - FUNDY NATIONAL PARK

Track Indices Per Area

Date:_____ Transect No.:_____ Location:_____

Weather Conditions:_____

Snow Depth:_____cm Condition:_____

Days since last snow:_____ Observers:_____

COVER TYPES

SPECIES	Area I		Area II		Area III		Area IV			Total
	tracks	indices	tracks	indices	tracks	indices	tracks	indices	Total	
Fisher	6	32	4	13	6	71	5	38	154	
Weasel	4	21	19	63	10	119	0	0	203	
Mice	16	84	97	321	7	83	1	8	496	
Fox	1	5	0	0	0	0	0	0	5	
Mink	0	0	0	0	0	0	1	8	8	
Squirrel	22	116	89	295	137	1627	10	75	2113	
W. Tail Deer	1	5	53	176	17	202	0	0	383	
Moose	10	53	0	0	0	0	0	0	53	
Bobcat	4	21	1	3	5	59	0	0	83	
Porcupine	3	16	0	0	2	24	0	0	40	
Otter	0	0	0	0	0	0	0	0	0	
V. Hare	131	689	180	596	26	309	0	0	1594	
Lynx	0	0	0	0	0	0	0	0	0	
Coyote	4	21	34	113	6	71	4	30	235	
A. Marten	2	11	9	30	0	0	1	8	49	
TOTAL										

*Other cover types = Alder, field, bog, etc.

Appendix III

TRACK TRANSECTS - FUNDY NATIONAL PARK

Track Indices Per Stand

Date:_____ Transect No.:_____ Location:_____

Weather Conditions:_____

Snow Depth:_____cm Condition:_____

Days since last snow:_____ Observers:_____

SPECIES	COVER TYPES										
	SOFTWOOD		HARDWOOD		MIXED WOOD		OTHER				
	tracks	indices	tracks	indices	tracks	indices	tracks	indices	Specify*	Total	
Fisher	11	54	1	17	9	21	0	0			
Weasel	7	35	2	34	21	49	3	128			
Mice	25	124	44	748	51	120	1	43			
Fox	0	0	0	0	1	2	0	0			
Mink	1	5	0	0	0	0	0	0			
Squirrel	142	702	13	221	102	240	1	43			
White t. deer	21	104	21	357	29	68	0	0			
Moose	0	0	0	0	10	24	0	0			
Bobcat	3	15	1	17	6	14	0	0			
Porcupine	3	15	0	0	2	5	0	0			
Otter	0	0	0	0	0	0	0	0			
V. Hare	124	613	0	0	174	410	29	1660			
Lynx	0	0	0	0	0	0	0	0			
Coyote	12	59	4	68	30	71	2	85			
A. Marten	4	20	1	17	7	16	0	0			
TOTAL											

*Other cover types = Alder, field, bog, etc.

APPENDIX IV TRACK INDICES PER AREA

SPECIES	AREA	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
FISHER	1	2	0	39	5	22	24	52	9	12	0	51	35	16	32
	2	0	29	4	15	8	11	69	6	0	3	31	16	22	13
	3	0	0	71	0	0	0	12	4	0	0	0	0	0	71
	4	0	0	0	0	0	8	6	4	8	0	33	45	12	38
TOTAL		2	29	114	20	30	43	139	23	20	3	115	96	50	154
WEASEL	1	103	26	78	42	17	63	58	18	63	45	43	115	272	21
	2	48	43	29	15	0	55	65	76	56	68	52	66	66	63
	3	5	112	79	0	59	71	178	32	48	59	6	24	0	119
	4	9	43	0	0	0	8	18	39	74	5	123	120	59	0
TOTAL		165	224	186	57	76	197	319.	165	241	177	224	325	397	203
MICE	1	124	60	65	56	31	29	116	125	92	25	297	121	66	84
	2	27	92	110	457	17	584	44	157	319	47	363	55	204	321
	3	71	112	0	71	24	475	166	170	48	154	30	190	0	83
	4	22	177	0	0	0	24	24	59	49	0	123	23	129	8
TOTAL		244	441	175	584	72	1112	350	511	508	226	813	389	399	496
FOX	1	36	89	7	11	4	5	6	3	0	0	101	12	49	5
	2	59	191	12	73	14	48	0	0	3	6	39	43	38	0
	3	86	0	0	0	0	0	0	0	0	0	131	0	0	0
	4	0	17	0	0	0	0	0	0	0	0	8	113	0	0
TOTAL		181	297	19	84	18	53	6	3	3	6	279	168	87	5
MINK	1	0	2	13	2	4	0	6	6	6	0	0	17	25	0
	2	3	0	0	11	0	0	7	0	0	3	0	23	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	36	0	0
	4	0	0	0	0	0	0	18	8	0	0	0	0	12	8
TOTAL		3	2	13	13	4	0	31	14	6	3	0	76	37	8

APPENDIX IV TRACK INDICES PER AREA

SPECIES	AREA	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
SQUIRREL	1	42	2	98	13	26	34	90	37	12	51	333	759	1138	116
	2	46	39	29	128	26	110	46	110	46	71	144	1868	1110	295
	3	62	24	32	142	12	368	71	277	36	154	469	1508	0	1627
	4	26	82	0	0	9	27	9	133	0	9	427	548	129	75
TOTAL		176	147	159	283	73	539	216	557	94	285	1373	4678	2377	2113
W.T.DEER	1	13	42	416	45	40	227	181	310	46	344	0	6	0	5
	2	27	255	374	26	26	826	435	1377	666	74	0	0	0	176
	3	1539	1701	918	2417	1924	1069	2007	1318	3800	5986	998	1200	0	202
	4	13	112	0	0	137	314	106	59	410	115	0	0	0	0
TOTAL		1592	2110	1708	2488	2127	2436	2729	3064	4922	6519	998	1206	0	383
MOOSE	1	15	36	13	14	0	102	0	24	12	0	29	17	0	53
	2	7	120	69	33	52	29	37	6	3	9	0	0	0	0
	3	0	177	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	48	0	0	64	157	0	12	82	37	0	23	129	0
TOTAL		22	381	82	47	116	288	37	42	97	46	29	40	129	53
BOBCAT	1	2	40	33	7	0	0	0	0	6	0	14	29	0	21
	2	35	17	37	29	11	48	16	0	13	0	9	16	3	3
	3	86	59	24	0	12	36	24	139	0	0	279	0	0	59
	4	112	4	0	0	0	4	6	0	0	0	33	23	0	0
TOTAL		235	120	94	36	23	88	46	139	19	0	335	68	3	83
PORCUPINE	1	15	21	0	2	0	0	0	0	0	6	7	0	8	16
	2	22	17	8	4	5	11	7	0	0	0	17	7	0	0
	3	38	118	55	237	95	59	48	40	154	24	59	24	0	24
	4	64	82	0	0	0	8	0	0	0	0	0	0	0	0
TOTAL		139	238	63	243	100	78	55	40	154	30	83	31	8	40

APPENDIX IV TRACK INDICES PER AREA

SPECIES	AREA	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
OTTER	1	0	2	13	2	0	0	13	0	0	0	22	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	8	0	0	0
TOTAL		0	2	13	2	0	0	13	0	0	0	30	0	0	0
V.HARE	1	869	1048	1404	276	708	401	1201	442	1139	1318	7487	799	2391	689
	2	297	1340	252	2283	956	1523	795	621	1765	1043	9034	2723	1411	596
	3	1501	1087	530	2962	1675	3147	1390	800	511	4584	4038	2268	0	309
	4	1162	5696	0	0	788	976	2053	424	1248	738	1670	1652	447	0
TOTAL		3829	9171	2186	5521	4127	6047	5439	2287	4663	7683	22229	7442	4249	1594
LYNX	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	4	0	0	11	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	8	0	0
TOTAL		4	0	0	11	0	0	0	0	0	0	0	8	0	0
COYOTE	1	0	0	0	34	58	15	103	12	86	185	246	40	173	21
	2	0	15	29	55	100	70	136	34	41	27	122	84	78	113
	3	0	0	48	47	71	95	154	51	12	24	178	214	0	71
	4	0	0	0	0	14	31	24	71	49	9	82	23	24	30
TOTAL		0	15	77	136	243	211	417	168	188	245	628	361	275	235
P.MARTEN	1	0	0	0	0	0	0	0	0	81	6	14	63	0	11
	2	0	0	0	0	0	0	0	0	0	30	70	16	50	30
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	16	18	140	60	94	8
TOTAL		0	0	0	0	0	0	0	0	97	54	224	139	144	49

APPENDIX V TRACK INDICES PER STAND 1978-1990

SPECIES	HABITAT	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
FISHER	SOFTWOOD	2	25	32	13	16	22	155	13	14	0	44	41	24	54
	HARDWOOD	0	28	29	18	0	17	13	0	0	0	22	37	0	17
	MIXEDWOOD	0	0	0	5	8	7	4	3	0	2	21	13	21	21
	OTHER	0	0	0	0	0	0	0	4	0	0	0	0	0	0
WEASEL	SOFTWOOD	129	105	72	52	16	72	84	116	90	54	114	127	213	35
	HARDWOOD	6	0	103	18	14	51	126	13	65	48	0	149	60	34
	MIXEDWOOD	27	13	34	22	4	24	18	9	45	43	29	38	73	49
	OTHER	0	83	29	40	38	71	330	0	32	0	0	162	500	128
MICE	SOFTWOOD	104	186	16	68	12	347	113	292	203	38	287	107	112	124
	HARDWOOD	67	52	235	223	42	995	88	243	877	64	647	224	200	748
	MIXEDWOOD	40	45	34	252	18	97	28	25	88	29	149	23	121	120
	OTHER	0	95	57	81	0	424	256	70	0	195	0	292	0	43
FOX	SOFTWOOD	80	183	16	3	16	36	0	3	5	0	138	12	6	0
	HARDWOOD	0	84	0	9	0	34	0	0	0	0	108	12	60	0
	MIXEDWOOD	44	81	7	80	2	2	0	0	0	5	24	61	49	2
	OTHER	0	59	0	20	38	35	37	0	0	0	120	65	0	0
MINK	SOFTWOOD	4	2	0	0	0	0	21	8	0	0	0	41	24	5
	HARDWOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MIXEDWOOD	0	0	0	5	2	0	4	1	0	0	0	2	0	0
	OTHER	0	0	57	40	38	0	0	0	32	32	0	260	0	0
SQUIRREL	SOFTWOOD	100	72	120	46	43	163	100	349	68	65	588	3042	1065	702
	HARDWOOD	36	0	59	62	42	34	113	38	52	128	172	149	838	221
	MIXEDWOOD	16	18	24	92	8	59	28	25	9	41	189	774	830	240
	OTHER	46	0	0	0	0	35	73	0	0	130	360	1006	2333	43

APPENDIX V TRACK INDICES PER STAND 1978-1990

SPECIES	HABITAT	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
W.T.DEER	SOFTWOOD	440	479	1420	137	730	980	1007	1980	2975	1881	548	115	0	104
	HARDWOOD	6	0	1144	0	0	354	113	730	537	96	172	0	0	357
	MIXEDWOOD	112	344	20	214	154	306	2789	208	267	224	104	149	0	68
	OTHER	254	201	286	61	1221	318	916	211	619	390	300	97	0	0
MOOSE	SOFTWOOD	18	105	120	20	43	83	63	31	45	0	5	12	65	0
	HARDWOOD	0	0	0	0	166	67	0	0	26	0	0	0	0	0
	MIXEDWOOD	3	123	0	27	18	92	2	1	2	23	8	6	0	24
	OTHER	0	0	114	0	0	0	0	0	0	32	0	0	0	0
BOBCAT	SOFTWOOD	96	55	112	23	4	18	25	90	18	0	54	49	6	15
	HARDWOOD	42	24	15	9	14	67	25	0	0	0	0	12	0	17
	MIXEDWOOD	19	10	0	13	6	17	0	0	5	0	16	4	0	14
	OTHER	0	0	57	0	0	0	73	0	0	0	1141	0	0	0
PORCUPINE	SOFTWOOD	64	87	48	23	31	11	25	26	59	8	59	16	6	15
	HARDWOOD	12	16	29	0	0	17	0	0	0	0	0	0	0	0
	MIXEDWOOD	16	16	3	13	2	11	2	0	0	2	8	2	0	5
	OTHER	0	0	0	0	38	35	0	0	0	0	0	0	0	0
OTTER	SOFTWOOD	0	0	0	0	0	0	8	0	0	0	5	0	0	0
	HARDWOOD	0	0	0	0	0	0	0	0	0	0	22	0	0	0
	MIXEDWOOD	0	0	0	0	0	0	0	0	0	0	5	0	0	0
	OTHER	0	12	57	20	0	0	0	0	0	0	0	0	0	0
V.HARE	SOFTWOOD	1803	4867	1770	2249	1581	2540	3030	1571	3771	2732	11773	3732	2710	613
	HARDWOOD	121	8	440	445	333	202	328	166	236	1284	1509	1056	359	0
	MIXEDWOOD	177	309	212	1668	604	420	417	60	316	445	3982	989	826	410
	OTHER	1824	1763	857	120	1870	3781	1392	264	2893	3766	1231	8864	3555	1660

APPENDIX V TRACK INDICES PER STAND 1978-1990

SPECIES	HABITAT	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
LYNX	SOFTWOOD	14	0	0	0	0	0	0	0	0	0	0	4	0	0
	HARDWOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MIXEDWOOD	1	0	0	8	0	0	0	0	0	0	0	0	0	0
	OTHER	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COYOTE	SOFTWOOD	0	15	72	49	93	112	155	114	59	27	232	103	112	59
	HARDWOOD	0	0	59	89	28	0	227	13	118	209	194	124	220	68
	MIXEDWOOD	0	4	0	32	57	11	75	13	36	34	104	55	62	71
	OTHER	0	0	0	0	38	71	0	0	0	227	210	227	0	85
P.MARTEN	SOFTWOOD	0	0	0	0	0	0	0	0	36	42	133	86	142	20
	HARDWOOD	0	0	0	0	0	0	0	0	0	0	0	12	0	17
	MIXEDWOOD	0	0	0	0	0	0	0	0	18	7	21	8	0	16
	OTHER	0	0	0	0	0	0	0	0	0	32	0	0	0	0